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AN
ESSAY
ON AN
ANALYTICAL COURSE OF STUDIES,
&c. &c. &c.

BRITISH MUSEUM

AN

ESSAY

ON AN

ANALYTICAL COURSE OF STUDIES,

CONTAINING

A COMPLETE SYSTEM OF HUMAN KNOWLEDGE,

e

BY J. B. FLORIAN, A. M.

> The Education of the Youth can only be preparatory to the Pursuits of the Man: and he who is best enabled, from a comprehensive view of the objects before him, to possess himself of those which are most worthy of his choice, is best educated.
>
> Dr. AIKIN's *Letters to his Son.*

⁂

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1796.

BRITISH MUSEUM

TO

THE RIGHT HONORABLE

LORD VISCOUNT PALMERSTON.

AS an humble Tribute of the high respect he entertains for his LORDSHIP, and a testimony of Gratitude for the repeated proofs of Friendship and Benevolence with which his Lordship has been pleased to honor him,

This ESSAY

Is respectfully inscribed,

By his LORDSHIP's

Most obedient,

Humble Servant,

J. B. FLORIAN.

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INTRODUCTION.

THIS Essay is the plan and outline of a work of very considerable magnitude, in which I have for these last several years employed myself, the first Volumes of which had been now before the public, had not many of the materials which I had collected, been destroyed in the course of a revolution that has extended its ravages even to the peaceful abodes of the lovers of the Sciences. In the hope that I may some day repair my loss, and render my work worthy the acceptance of an enlightened people, whose humanity has afforded me a refuge, I solicit their favorable reception of a sketch that may be found of equal use to the master who teaches, to the Father who wishes to form a plan of education for his son, and to the man who being already instructed seeks the means of throwing into order the branches of knowledge which he possesses.

The Reader will find, no doubt, a great difference between the Analytical system with which I here present him, and all other treatises on human knowledge which have been before published: indeed I should have feared to swerve from the authority of those who have gone before me in this tract, had not they themselves thought that the arrangement of the Arts and Sciences might be made equally as well after different modes. Without adopting this opinion myself, I might at least adduce it as a proof that those authors themselves did not consider their own systems as being exclusively the best that could possibly exist.

The immortal Bacon was the first who conceived, and who dared to mark out a plan of all the branches of learning of which man is capable: this plan, a sublime effort of genius at a time when knowledge was but little diffused abroad, has been adopted almost without the least alteration, by every author that has followed him, and latterly by those of the french Encyclopedia: but in forming their genealogical tree of the Arts and Sciences, the authors have declared that their embarrassment was so much the greater as they had greater latitude of will in the distribution, and that one could refer the different branches of knowledge as well, either to the beings which they have for their object, or to the different faculties of the soul. They inclined to the latter side, and it is perhaps for that reason, that this distribution has appeared to them susceptible of so much latitude.

In general, the Philosophers who have treated of the origin of human knowledge reason thus: "We acquire our knowledge by thinking, and therefore we ought in the first place to enquire how it is we think." But the human mind does not appear ordinarily to follow this rout. Our first observations are more naturally made on those sensations which we receive from the objects that surround us, than upon the manner itself in which we receive those sensations. In making that our first study which affects our senses, we proceed with certainty from that which we know, to that which we know not; whereas, if we begin by researches into the manner of our receiving our ideas, and the faculty of acquiring knowledge, we at once find ourselves cast upon a sea of Hypotheses without rudder or compass to guide and direct us. After much labour and trouble, we come at last to discover that we think only through the medium of our senses; we see that an acquaintance with our physical organization is necessary to the knowledge of our intellectual faculties: we perceive that the sensations made upon our organs cannot be considered separately from those exterior objects that produce them, and that in order to our being able to judge how we have the notion of sound, of colours and of taste, we must first know how the air is put into vibration by sonorous bodies, what are the laws of reflexion and refraction, of what nature are the principles contained in the aliments of which we make use; and thus are we obliged to return, before we can proceed to any other study, to that of physical beings and the acts which concern them.

Such, then, is the order that I have followed in this essay: The chain and connexion which this order establishes among the branches of human knowledge will, I hope, furnish convincing proofs that the basis on which their arrangement is built, is not a matter of indifference; and it farther offers this advantage, that it applies itself perfectly to a system of education proper for forming men to fill with success a distinguished place in society, whilst out of all the genealogical trees of the Sciences that have hitherto appeared, there has not been found a basis whereon it was thought proper to found a consequent education.

Perhaps this essay may be taxed with being too brief; but I shall think myself happy if no more serious fault be laid to it; so much has been already written on education, that it would have been useless to spin out a book on this head; I have therefore endeavoured, in as few words as possible, to say all that was necessary, on the distribution of the different branches of Philosophy and the Sciences. I have already premised that this sketch is not to be considered as merely elementary, but as destined for the perusal of the man who is already instructed, and who wishes either to put into order the knowledge which he has acquired, or to form a plan for the education of youth. In the other work which I have undertaken on this same subject, I shall give the whole developement of those sciences, of which I have here only pointed out the connexion and arrangement; and its principal end shall be to present to persons who are therein deficient, the sources whence they may draw them, and the means of acquiring them.

The trouble of writing this Essay will be amply recompensed to me, if its publication shall afford me any reflexions from the learned ed on the plan which I here adopt, if my errors shall appear to them worthy of correction, and if they will deign by their observations to assist me in rendering my other work sufficiently perfect for their perusal.

PART THE FIRST.

AT the epoch of the revival of letters, the modern languages then in their infancy, contained no work of sufficient consequence to offer to the attention of the learned; the books that had escaped from the fury of barbarians were all written in Greek or Latin, so that it was not possible to enter in the career of science without having first learned these two languages which were in some measure appropriated to it. These tongues not being used in common conversation, or for the ordinary concerns of life, but confined to schools and the studies of the learned, they were obliged to be attained by a long and troublesome road, and several years were barely sufficient to make a tolerable progress in them. But when the modern languages had made some steps towards refinement, and authors dared to write in those new idioms, the study of Greek and Latin began to grow less necessary, and it is much less so still at this time, when the antients are equalled in all kind of knowledge, and considerably surpassed in many, and when our languages are enriched and perfected by so great a number of excellent works as have appeared within these two last centuries. Nevertheless, through that respect which we entertain for antient customs, even a long time after the motives which gave rise to them, and which rendered them reasonable, have ceased to exist, we have not yet been bold enough to depart from the old track, but actually, as in the twelfth century, we pass the most valuable part of our youth in studying languages which leave us no other advantage scarcely, at our quitting school, but the reputation of having learned them.

It is at least doubtful, I think, if the pleasure of admiring in the original the beauties of antient authors be an equivalent always for the pains it has cost to understand them: yet admitting that the study of them be necessary for forming and purifying the taste, and for giving a new activity to the imagination, one ought at least to allow that infancy is not the proper time for beginning this study, and that it ought to be carried on to a season in which a person is likely to do it with fruit. If Homer, Virgil, Anacreon, Ovid, and Catullus have described and painted all the tenderness, the fury, or the ingeniousness of the passions, surely it cannot be in an age in which there are no passions at all, that one is in a state to feel the beauty of the expressions that paint them. To be able to draw from Horace and Quintilian, Demoſthenes and Cicero, rules and examples of taste and eloquence, we must be prepared for the reading their works, by the preliminary knowledge of the human heart, its inclinations and its caprices; by a certain acquaintance with manners and with prejudices; by the habit of observing attentively vices and follies, in order to know how to seize them where they are, and to hold the picture in its true light; in fact we must have lived long and have reflected much *.

As

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* The Reader will find on looking forward to the age of twelve, that the Author does not mean a boy should be kept without

As the knowledge of dead languages cannot be acquired but by the learning their principles, their study requires that of grammar, and is also connected with the study of mythology, by the writings of the authors in which we must read for the learning them. The history of fabulous gods and heroes is surely not a proper one to form either the heart or the understanding; and it is really astonishing that mankind has not yet duly reflected on the danger of feeding the imagination of children with such licentious descriptions as that history abounds in. Moreover, grammar presents nothing but unintelligible words, of the meaning of which it is often even impossible to give an explanation. How can one make a child comprehend what is the masculine or the feminine gender? shall we tell him

without any knowledge of the Latin Tongue till he has attained a maturity of judgment and reflection; but only to profess his disapprobation of that erroneous manner of educating children so prevalent throughout Europe, which keeps them, from the first day they enter a school to the time they quit it for a profession or the University, entirely employed on Greek and Latin, to the seclusion of every other branch of more useful learning.

that these Genders are the signs of the two different sexes, when a table which is of no sex is nevertheless of the feminine gender in Latin? or rather the child does not know what sex means; what answer then ſhall we give him when he asks an explanation of sex male and of sex female? this explanation however becomes necessary to give an idea how the masculine and feminine genders are formed in a language.

Disgusted at words to which they can attach no idea, and discouraged by having for their guide rules of mere agreement only, which are often not founded even upon a plauſible reason, children eaſily persuade themselves that all our knowledge is arbitrary, and almost conclude that it is useless to study things which depend purely upon the caprice of men and which may be destroyed by a new caprice.

All these inconveniences disappear when we take for the basis of education those certain Sciences which reſt on material and invariable facts; the perception of which is given directly by the senses, and in which our researches are directed by experience. The world is a little too much prejudiced in the notion, that the mathematics combine only abſtract ideas, and are founded ſolely on reaſonings independent of experience and the evidence of the senses. There is scarcely a science where one has oftener recourse to the testimony of the eyes than in Geometry: the extension of bodies, their dimensions, their surfaces, the lines which we make uſe of to represent them, the angles which they form, are things and signs purely material, which one cannot know but by seeing them, and which cannot be rendered intelligible by words. Calculation itself, which appears to be the most abstract part of the Mathematics, has all its fundamental truths founded directly upon the evidence of the senses, and each step in this science, as in all the others, is in effect no more than an appeal to experience. If, for instance, one wanted to demonstrate that 4 and 4 make 8, or that 3 times 4, and 4 times 3 are the same thing, it is not by reasoning that one shall make it better comprehended, but by the images themselves arranged by 4 and then repeated two or three times, or arranged by 3 and repeated four times; and all the reasoning that could be employed for this demonstration would be no farther intelligible than it presented clearly those images to the mind. Perhaps it may be said that these truths are so evident that they need no demonstration; but this is a fresh proof that they are the result of that experience and those observations which are always within the reach of the whole world, for in fact we judge of the evidence, only by the testimony of our senses. In general, did we well reflect, that all ideas are images, we should see that there could be no ideas truly abstract, and that those which we so denominate, almost always are false images, or proceed from unintelligible explanations.

The Mathematics, thus brought back to sensible ideas, to images of real objects, form a study the most useful and the most interesting to children. All that is presented by them to their attention, is proper to fix it, without fatiguing it, as Bodies, Figures, Motion, in a word, all the things and all the facts which they have every moment before their eyes, and of which they are required to measure the size or the quantity; so that no child but would willingly abandon conjugation and syntax to trace a circle, draw a parallel, level a mound, or measure an inaccessible height or distance; whilst, instead of filling their heads with marvellous stories, and of using them to reason upon words whose meaning they cannot attain to, these sciences rectify their judgment, and teach them to give a consequence to their reasonings, because in the studying of them we do not believe upon trust and without conception, nor do we ever arrive at the discovery of a truth but by means of propositions already comprehended and demonstrated.

Young persons formed after this manner to scrutinize into the chain of principles upon which a proposition is built, and of the processes which they employ in their operations, soon learn to require a reason for all they see; their curiosity is excited in proportion as their knowledge is extended, and they go on wishing to discover the causes of all the Phenomena of Nature: accustomed not to give credit but to demonstration, they will be the farthest from carrying into Physics that spirit of system which so often plunges into error. The less certain the road appears to them that leads to truth, the more are they on their guard against whatever may turn them aside from it: they will continue to direct themselves after the method which they have continually followed in the Mathematics, by proceeding from what they know, to what they do not; they will carry along with them in all their observations that spirit of reflection which they have so early acquired, and every thing they see will only serve to confirm them in the wisdom of this method. In combining the relations of beings; in exploring the chain of events; in going up from effects to their causes, they will learn by these repeated comparisons to distinguish what is true, what is doubtful, what is false; to know the bounds of the human mind; to believe neither too much nor too little; to avoid precipitation in their judgments, and the rashness of general propositions.

Afterwards when they pass on to the less palpable truths of morality, their mind formed to observation will explore them with equal facility and certitude. They will discover the unalterable bases upon which are founded the reciprocal duties of individuals in respect of one another and towards society, as well as the duties of that society taken collectively towards the separate members which compose it. They will find them in the nature of man, in his wants, in his passions, which compel him to unite himself to his equals, and which in that union impose obligations upon him which he cannot violate without losing all the advantages which he sought for in that union itself.

Philosophy and the Sciences then, ought to constitute the principal study of those who would conduct themselves well, or whose rank might call them to govern others, and they ought to go successively through the several branches of them in the course of their education.

This Plan is, without doubt, a vast one, but it is in its vastness that its great utility consists. Education is the noviciate of life: and in life manifold and various are the stations. One cannot decide which of them would best suit a subject of whose dispositions and capacity we are ignorant; on the contrary, by teaching him during his youth to know the different means of being useful to society, he will be prepared to serve it afterwards in all its employments: by opening to him the entrance, and by pointing out to him the tract of the different courses he may travel through, he will have acquired light enough to chuse that which agrees the best with his taste and with his talents.

Another reason, not less powerful, ought also to determine us to give the preference to the most extensive plan of education. Although the bounds of our understanding do not permit us to render ourselves alike versed in all the branches of Philosophy and Science, there is nevertheless such a concatenation between them, that it would be impossible to possess one part of them, without having at the same time some cognisance of the others, and of that whole which they compose. All that exists and all that happens is both effect and cause. If we study a particular object without considering its connexion with other objects; if we observe a fact independently of the causes that have produced it and the consequences that result from it, it is evident that we omit a great number of circumstances that belong essentially to that fact or to that object; and whenever we form a judgment of it, confined in its extent and without due regard to those circumstances, that judgment is necessarily false. Half acquaintances with things are always dangerous: they lead men's judgment astray, in teaching them to content themselves with bare words without diving into the sense of them; to pronounce upon things half understood, upon incorrect observations, or insufficient data; and what is worse, they attach themselves to the errors into which they are plunged, by bonds the most difficult to be broken, those of presumption and self-love.

Examples may render the truth that I have just advanced more easily felt.—Suppose for instance one wished to resolve a rather general question, *Whether Commerce is beneficial to a State?*—A shopkeeper would be the last person in the world fit to decide it. Confined within the narrow limits of his shop and of his counting-house, he knows nothing of Commerce more than the profits that he draws from it, and the losses that he has suffer'd. The enlightened merchant habituated to carrying on trade on an extensive scale, to calculate the wants of different nations, to follow up the circulation of the productions of the different parts of the globe, *he* may give a more just solution of the question, but to give a true one, he must know, moreover, the effects of Commerce upon all the classes of society, upon all the provinces of the State; he must understand upon what bases trade is naturally established, before he can be qualified to judge whether the State be proper to become commercial by its situation and by its productions, if the nature of its exchanges be profitable or the contrary. To that end he must join to a profound knowledge of his profession, an acquaintance with whatever relates to it in the whole world.

Botany would be no other than a vain nomenclature of plants, if we confined ourselves to the knowledge of their names, the form of their leaves or of their roots. That which they offer more interesting to our observation, is, their vegetation, their reproduction, and their properties. To make this observation with success it will be necessary to know the fluids that compose their sap; the earths that form their solid parts; the salts and Sulphurs that give them their flavour; the odoriferant gazes which they exhale; the mephitic vapours which they aspire and respire through their pores; the light that gives them their color, towards which they constantly direct their stalks, their branches; the heat that unfolds their buds, and ripens their fruits; the stomach of animals upon which they produce so many different effects, &c.—So that the perfect knowledge of a single blade of grass, requires an acquaintance with all nature.

Education then ought to have for its aim, in the first place, the guiding us in our choice of a profession by setting us to discover what are our inclinations, What our dispositions; in making us know what is the extent of our means and abilities; and in teaching us to what we are obliged by the rank we hold in society. Secondly, the putting us in a state to acquire a profound knowledge of the profession we have made choice of, by a preparatory study of beings and facts in general, which have all a connexion more or less intimate with the particular object of our profession.

This plan, the scope of which startles us at the first glance, becomes extremely easy to execute from the moment we endeavour to conform ourselves to the method which the human mind naturally follows in the acquisition of every species of knowledge: The evidence of the senses suffices for simple things, the exact perception of which is conceived on a single inspection; but it is by the assistance of *analysis* that we arrive at the knowledge of compound things and of general facts.

ANALYSIS consists in observing at first the principal features that form the whole of an object; in descrying then successively its divers parts; in investigating all their details; remarking their proportions, and their respective situations, for the purpose of the replacing them in the order which they bear amongst themselves, of the recomposing the exact image of the object, and catching at once its whole, such as it is in nature.

This is the method we naturally follow every time we seek to know perfectly any thing whatever, and it is the only one that can engrave a faithful image upon our mind; it is thus that the Painter begins his picture; at first he looks through the whole of his design; he sketches lightly the principal parts of it; he then returns to each of them successively; by little and little the perspective opens, the landscape unfolds itself, the groupes begin to breathe; he gives the finishing touch to each tree, to each personage, and the painting presents at one glance the whole as well as the minutest pariculars of the subject it was meant to represent.

It is the same thing with respect to matter of reasoning. We must never lose sight that all our ideas are images; that even those which appear the most metaphysical, express circumstances which may apply themselves alike to a great number of things or facts, but which nevertheless we can never consider without giving them their relation to some one of those facts or those objects: So that a definition is a successive description of the parts of which that which we define is composed: it is, to use the expression, a picture made of words, in which we must follow the same rules as in a real picture, if we wish that it should be a faithful imitation of the original. The reasoning that one uses to demonstrate a proposition, to establish a general truth, consists in the painting all the facts which concur in the support of that proposition, and which combine to give that truth as the result. The only method to follow is to represent clearly to one's self the general fact of which we would prove the existence, to go successively thro' the concatenation of the particular facts which concur in the forming of it; to present them according to the order which they really have amongst themselves; and then to resume them, and show at a single glance the result of them, which ought to be the proposition at first anounced.

By following this manner, we shall be certain of having presented an image conformable to truth. By having continually before our eyes the whole of the subject that we treat of, and by referring constantly to it each of the parts which we examine, we shall easily see if there remains any chasm among them, whether we have not omitted some circumstance that might change the nature of the fact which we would prove, and might give perhaps in the result a quite different picture. On the contrary, if we neglect this analytical method, and by not duly considering at first the whole of the thing to be defined, or of the fact to be reasoned upon, we only pick up here and there a few details and circumſtances that belong to them; we then run the risque of not being able to form out of them a whole which resembles the original; like to a Painter who, instead of following the rules of his art, should begin a picture by leaves, and feet, and hands, we work without any plan, and it will be by chance if we ever succeed.

PART THE SECOND.

AN Analytical Method, then, is the one which we ought invariably to follow in the study of Philosophy and the Sciences, and conformable to the tract which it prescribes to us, we ought in the first place to seek some point under which we may collect all their branches; then, secondly, to consider them separately according to their general divisions; and, lastly, pass on to their particular details.

Nothing is wholly insulated and independent in the universe: The Beings which compose it, the events which occur in it, have all some relation with each other: But we can know only of those relations the immediate ones which concern ourselves, either directly by the application we make of them to our own wants, or indirectly by the simple impression they make upon our organs.

What does not affect our senses can excite in us no perception, no ideas, and must remain hidden from us for ever. *The study of the* UNIVERSE, *then, as far as it concerns* MAN, *is confined to his relations to the things which exist, and to the facts that pass in it.* Such is the point of view under which we ought to consider the whole of that knowledge we may be seeking to acquire: Each separate branch forms one of the Radii of that Circle in the center of which we find ourselves placed, and which all unite themselves in one single knowledge, the knowledge of ourselves under every relation of which we are capable.

There is nothing in nature which does not create in man an impression accompanied with some degree of pleasure or pain: Connected, therefore, already by his *sensations*, with every object around him, he becomes yet more intimately so through the means of his *wants*. Upon those two foundations are established the relations that are the most interesting to him, those that tend to his preservation. His researches, consequently, ought primarily to have for their end the qualities and properties of things; the uses to which he may apply them; and his first study should be that of HIS RELATIONS TO NATURAL BEINGS.

When, therefore, Man, after having traced successively the links of this immense chain, at length reaches himself, he discovers a new source of knowledge which nothing else had yet been able to offer him: He has been considering on what he has perceived in other beings, he now comes to observe by what mechanism he possesses that perception: He knows how different beings act, he must now learn how he attains the power of conceiving their actions: He must seek to distinguish what passes in himself at the same time he witnesses what is passing around him: He must observe the actions of his organs and the exercise of his intellectual faculties. Man then presents to his own eyes a new whole to study; he finds in himself details which till now were entirely unknown to him and are totally different to all he has elsewhere been able to observe. The reciprocal action which his divers organs have one upon another; the uses which he makes of his own faculties may be juſtly termed THE RELATIONS OF MAN WITH HIMSELF, and form the second class of that knowledge he should labour to attain.

By investigating the use which he makes of his organs and his faculties, Man perceives that he owes to them the means of communication with his fellow-creatures and the bonds that unite him to them. This observation leads him to the further discovery of many other relations which have not yet come under his consideration. There is no human being, in whom he is not more interested than in any other being: With these indeed his wants create a connexion the most intimate, but he not only makes the services of other men subservient to his own wants, but he makes them the objects of his passions: Love, friendship, hatred, revenge, leave him indifferent to none of the human species, and at the same time that he joins his labours to those of the other members of society, he takes a share in its government and fights in its cause. Thus, *his affections* and *his duties*, as a social being, are new objects of study to him: and as he proceeded from the investigation of *his relations to other Beings*, to that of *his relations to Himself*, it now only remains for him to consider HIS RELATIONS WITH RESPECT TO OTHER MEN.

Such is the general division established by Nature herself in the different branches of knowledge which Man is capable of obtaining, and it is thus they are painted in the *Analytical Table* which is joined to this Essay. The abridged developement which I am going to give, will suffice to shew the intimate connexion that exists between those branches; the utility of being acquainted with that connexion; and the facility of doing it by following the method upon which the successive order of all the sciences is established.

FIRST CLASS.

Relations of Man to natural Beings.

GUIDED by our analytical method, we must begin by observing the general relations common to all beings, before we proceed to thoſe that are peculiar to species and individuals.

Let us cast our eyes at random upon the crowd of beings that surround us, and setting aside the different sensations which each is capable of exciting in us, let us attend only to the general sensations which they produce. We perceive, in the first place, that they form a *Number* more or less considerable; that, that Number may vary according to the manner in which we observe them, and extend from *a single one* that might fix our attention, to an *indefinite Quantity*, in proportion as we carry our view so far as we are capable of carrying it. That in each object, the quantity of matter and of similar parts, offer differences that are varied beyond all calculation.

We remark next, that each body occupies a ſpace; that they have all a form, a figure, and consequently, *an Extenſion.* That the distances which separate us from the most remote objects, consist in the successive extensions of the bodies placed intermediately between us.

Whilst our eyes are wandering over the crowd of beings that surround us, many have already changed their station; some are hurried away by the course of the stream; animals traverse the plain; the wind agitates the trees, bends the grain, chaces the clouds; the sun attains the center of his course, he darts his beams with encreased power; all has life, all has motion: we seek the shade which has forsaken us; as we proceed, the lighter bodies yield to our impulsion; we attempt to remove objects more considerable, they resist, but at length give way to repeated efforts, and notwithstanding the immobility which seems to be the eternal portion of those cumbrous masses of rocks, whose summits lose themselves in the clouds, we feel that we are only deficient in strength, proportioned to their weight, to put them into *motion*.

Thus, the general attributes which we remark in every being, are

QUANTITY, EXTENSION AND MOTION.

The knowledge of QUANTITY, and of the modifications of which it is susceptible, is the key to all other knowledge. It is by the assistance of its combinations that we arrive at an exact acquaintance with our several relations to the physical beings, and it is by that certain judgment it enables us to make that we determine their application to our own wants. It ought then, on all accounts, to constitute the primary object of our studies, and to obtain the firſt place in the classification of our knowledge.

This Science, under the generical name of CALCULATION, contains, first, ARITHMETIC, which has for its object *Quantity*, of which the value is expressed by numbers which are invariable-able and decided: secondly, **Algebra**, which treats of *Quantity* expressed by letters, of which the value is arbitrary.

The **Extension** of bodies is known by the determinate parts which they contain, and with the assistance of calculation. The science which teaches how to measure, it is called **Geometry**, and is divided,

First, into *Elementary Geometry*, which comprehends Rectilineal Trigonometry, and the measure of Solids.

Secondly, into *Transcendant Geometry*, which, by the aid of Algebra, teaches to measure compound and irregular curves, and is preparatory to the calculation of those complicated lines which several bodies describe in their motion.

Motion, the last relation common to every being, ought to be considered as the *mobility* only, or *the faculty of being moved*, which belongs to all bodies.

And here we have to ſtudy two very diſtinct effects of *Motion*; namely, the revolution of the *celeſtial Bodies*, the Phenomena that belong to the general System of the Universe; and the motion of *Bodies terrestial.* In this study we must begin our researches by those things which are within our reach, and concerning which we form a more exact judgment; and guided by the observations with which they furniſh us, we may then proceed more surely to those objects of which we have no certain knowledge, and concerning which we can judge only by analogy. Our first study therefore of Motion, will best commence by considering it in such bodies as are submitted to our power, and to our immediate observation, whence

MECHANICS,

comprising two principal branches. First, *Statics*, which have for their object the consideration of that Motion which may be given to bodies, and which is named *hydrostatics*, when considered as applying to fluids.

Second, *Dynamics*, which have for their object the knowledge of Motion considered whilst the bodies are actually moving: applied to fluids in general, they are called *hydrodynamics*, and *hydraulics*, when peculiarly relating to the actual motion of water.

Thence we proceed on to consider the Motion of the *celestial bodies*, whence

ASTRONOMY,

which has in view to make us acquainted with the absolute situation and the revolutions of the fixed Stars, of the Sun, of the Planets and their Satellites; to observe the various phenomena that result from them, such as their eclipses, the alternative of day and night upon the hemispheres, the different appearances of the Sun in the celestial space during our revolutions round him; the phases of the Moon, whilst she herself turns round our globe, and the consequent division we make of time into years, months, and days.

And thus concludes the examination of the three general relations of beings, the study of which is comprised under the name of MATHEMATICS, which are distinguished into *pure* or *simple Mathematics*, when they have for their object the invariable facts upon which Calculation and Geometry are founded; and *Compound Mathematics*, when they concern the less certain phenomena of Motion, the examination of which, can never be so exact, being continually subject to incalculable causes.

It is to PHYSICS that belongs the research into those causes. The motion of the celestial bodies necessarily depends upon the *fluids* in which they are immersed. The knowledge of those Fluids is then what we ought immediately to take under our consideration.

LIGHT is, of all the fluids, that which is most intimately connected with the celestial phenomena. It is to that we owe the successive return of day and of the seasons: it is *that* which conveys heat, motion, and life into every globe in our solar system; and it is *that* which probably extends them from that multitude of Suns whose infinity escapes our senses, to the Planets which surround them. Astonishing immensity! which strikes with admiration the mortal who dares raise his thoughts so high, but which soon leads him back to the humiliating recollection of his own impotence, and compels him to exclaim with the Psalmist, THE HEAVENS DECLARE THE GLORY OF GOD, AND THE FIRMAMENT SHEWETH HIS HANDY-WORK.

We have next to observe the effects of light upon the terrestrial bodies; hence OPTICS, which treat of light moved in a direct line. CATOPTRICS, which treat of its reflection by the bodies upon which it strikes; and DIOPTRICS, which have for their object its refraction, according to the media through which it passes. It is to these two effects of light that the study of *colours* is to be referred, which contribute, as much as the opposition of light and ſhade, to render visible to us external objects, and to which we are indebted for all those beauties so profusely spread abroad over the face of Nature.

The study of light naturally leads us to that of FIRE, from which it never appears entirely separated, and from thence to that of ELECTRICITY, in the effects of which we retrace the Phenomena of light and fire: MAGNETISM, of which the effects have a remarkable connexion with some of those relating to Electricity, belongs to the same study.

The influence which the preceding phenomena have over our atmosphere, leads us to make observations upon the AIR which compose it. These observations are divided into three branches: the firſt relates to the phyſical properties of air, whence PNEUMATICS and ACOUSTICS, or *the Theory of Sounds*. The second treats of its chemical properties, and of *Factitious Air*, or GAS. The third teaches how the variations of the atmosphere are caused by these different properties, and is named METEOROLOGY.

The fluid which is found the most usually combined with air in the atmosphere is WATER. When from a state of vapour it returns to a condensed one, it falls again upon the earth, remains there, and the effects which it operates naturally lead us to the study of the GLOBE which we inhabit.

THE

THE EARTH.

The first thing to which we ought to carry our researches, is the original formation of the Earth, or COSMOGONY. The insufficient data which Philosophy affords us upon this subject points out to us the necessity of a First Cause, whose existence and power of creating surpass the limits of our understanding. The form of the Earth, or COSMOGRAPHY, presents to us a subject of knowledge more within our reach: from thence we proceed to the objects of which it is composed, or MINERALOGY; we see how those elementary parts are combined into the things which it produces; whence arises BOTANY, or the knowledge of Vegetation, the ſtudy of which leads us, almost without interruption, to that of the ANIMALS that inhabit our globe, by the point of union that is eſtablished between the two kingdoms, namely, those beings which, on account of their form, would be condemned to class among the vegetables, if their motion did not appear entirely directed by an animal instinct.

Along with the history of the three natural kingdoms ought to be ranked the science of CHEMISTRY, which teaches to underſtand the principles of which they are composed, to establish between them the necessary distinctions and to apply them to our own use.

SECOND CLASS.

Relations of Man to himself.

Our observations upon organized beings, and their progressive order from *Plants* to *Quadrupeds*, according to the degree of perfection in their organization, lead us, in course, to reflect upon ourselves.

The ressemblance which we perceive between the conformation of the most perfect animals and our own, naturally renders *this last* the first object of our attention, whence the knowledge of the human body or ANATOMY; of the causes which derange its œconomy, some of which, such as the accidents which attack its exterior, are objects of SURGERY, and such diseases as have their seat in its interior, and menace its whole system, come under the province of PHYSIC: these two arts employ to operate a cure, the remedies that are prepared by PHARMACY.

The knowledge of the construction and uses of our organs, teaches us in what manner we receive the different impressions of exterior objects, and prepares us to learn how from these sensations is composed within us THE FACULTY OF THINKING.

To endeavour to give an account of this faculty by the intervention of the *soul*, would indeed be vain. The nature of the spirit, the action of the spirit upon matter, and of matter upon the spirit, cannot be submitted to the evidence of the senses, and are therefore mysteries so much beyond the reach of Philosophy, that it ought not even to attempt explaining them. All metaphysical reasoning upon such matters borders upon temerity, and can only mislead the imagination, or stagger the faith. The decisive authorities of scriptural revelation, are the only ones that we ought to consult upon that subject. We derive from them the confirmation of that internal sensation of our spirituality, which leads us to the hope of a future state, and it would be useless to seek, in natural beings, demonstrations which they cannot give us, when we have for our guides Religion and Sentiment.

Our researches then ought to be confined to the mechanical formation of our ideas. The impressions which our organs receive from exterior objects, the faculty which they possess of experiencing anew the same impressions, even in the absence of the objects which produce them, and of accompanying those renewed sensations with others that are actually present; in short, the quickness of all those operations, account for the mechanism of the UNDERSTANDING, of the MEMORY, of the IMAGINATION, of ABSENCE of MIND, of DREAMS, of DELIRIUM, and of MADNESS.

The reciprocal action of the *moral* part of Man upon his *physical*, and of his *physical* upon his *moral*, naturally presents itself to our observation, after the study of those two faculties. We have first to examine how the sensations of WANTS, of PLEASURE and of PAIN, produce in us DESIRES and PASSIONS; then how these govern our JUDGEMENT and our WILL; how far they leave us the liberty of determining and acting, and how much our FREE-AGENCY is submitted to things and to circumstances.

It is also to this action of the physical part upon the moral, that belongs the relation which has been thought to exist between the features of man, the conformation of the solid parts of his head, and his temper, as well as his intellects. The art of judging thus of the intellectual faculties by the exterior form, called PHYSIOGNOMY, has opened a new source of knowledge. It is useful to study it, were it only to guard ourselves against conjectures too hazardous, not to be dangerous; and to know precisely how far we may, with safety, form an opinion of men at first sight; a fault which is but too common among those even who have no idea that this art can be submitted to any determined regulations.

THIRD CLASS,

Relations of Man to other Men.

After having considered in the preceding study the influence of Man's Wants and Passions upon his judgement and his will, we are conducted by a continuation of that consideration, to observe the necessity which those same Wants, and particulary those Passions, impose upon him of associating with his fellow-creatures.

Man in society with other men must be regarded in three different points of view: As an individual among the savage Clans, living upon what he obtains by hunting and fishing, and the spontaneous productions of the Earth: Then we must follow his progress through a tribe of wanderers and shepherds, till he attains a state of Agriculture and Civilisation: and lastly, after this individual view of Him amongst his Equals, we must examine the relations of those divers aggregations of Men with respect to each other.

Man, as we have already remarked, is united to his fellow-creatures, first by his Wants, and then by his Passions. The first thing he does, in a savage, as well as in a civilised state, is to communicate to them the wants which he experiences, and to consult with them upon the means of providing for them. *Gestures* and *Cries* are the means he first employs: soon after he makes use of *Sounds* more varied and more articulate; he expresses by different *Words* his ideas of Things, of Actions, of Time and Place, and the connexions of those ideas; whence GRAMMAR, which teaches the correct arrangement, and the exact combination of those Words. When he afterwards discusses his private interests, or gives his opinion upon the general interests of society, it is by the assistance of LOGIC that he puts his ideas into the order, clearness and precision, necessary to convince those to whom he speaks.

With the help of CHARACTERS and SYMBOLS he transmits his thoughts to those distances whither sounds cannot attain, and perpetuates their remembrance to future ages.

When agitated by his passions, he seeks to infuse them into others, and either wishes to animate his Friend to revenge the injury he has received, or to excite in Her he loves all the ardour himself experiences, his discourse acquires more energy; he presents the images of all that Nature offers the most gloomy, the most impetuous, or the most tender and engaging; he strikes the ear with harsh sounds and hurried measures, or delights it with harmonious syllables and cadences: As his imagination becomes more and more heated by the remembrance of his wrongs, or by the desire or approach of happiness, his voice acquires inflexions more sonorous, more vigorous, or more seductive; his attitudes paint the delirium which agitates him; he defies to the combat; he sings his victory or his love; tramples under foot an imagined enemy; bounds with joy, or rocks himself effeminately in the arms of Voluptuousness.

Such was amongst every people, the origin of ELOQUENCE, of POETRY, of MUSIC, and of DANCING. Arts which are found in *Otaheite*, and upon the banks of the *Niger* or the *Ohio*, as well as in *London* or *Constantinople*.

The art of providing for man's wants, confined at first to hunting and fishing, in proportion as population increased, called for new resources, and opened new branches of industry. He began by rearing flocks, and wherever the soil furnished them with sufficient nouriſhment, he remained given up to the unsettled and half savage life which results from this species of occupation. In less favoured climates, in countries where the population became too numerous, it was necessary to force the earth to yield a more abundant supply, and this probably was the first step towards CIVILIZATION.

In this second state of Man, AGRICULTURE, which is both the cause of a civilized society and its principal tie, is for that reason the first art we ought to study; all the others are assisting to it, or founded upon it. On opening the bosom of the Earth, it was found abounding in metals, and these, either by some happy conjecture, or by patient experiments on their uses, were applied to ruſtic purposes, became new objects of labour, and the subjects of fresh observations; from these arose Metallurgy, which at all times, has gone along hand in hand with Agriculture.

Man was engaged in cultivation by the necessity of providing for his daily nourishment: What objects could be made to answer this end? this question indicated by Nature herself, led to the knowledge of the uses of those grains, and fruits, and roots, and plants, from which he derived his food, and in which the want of a shelter from the intemperance of the seasons led him to search for new properties: he applied the fibres, the barks, the juice itself of them, to form and stain his neceſſary clothing which he had before taken from animals, by stripping them of their skins and wool to screen himself from the inclemency of the air, and the pressure of those hard bodies which might wound and injure him.

The perfection of the mechanical arts taught him to improve the means of transmitting his thoughts,

thoughts to distant times and places, and made way for the Liberal Arts. The coarse symbols which were used in his savage state became more perfect representations of men, of plants and animals; but in proportion as arts and occupations were multiplied, population encreased, the relations between men became more extended, and called for a more intimate and regular communication: In order, therefore, to transmit his ideas, upon every occurrence, to considerable distances, Man was obliged to invent signs more convenient and capable of greater variation; and this led him first to the invention of WRITING, and afterwards of PRINTING.

As PAINTING and SCULPTURE made every day a new progress, they were soon brought so far as to be employed in ornamenting his buildings. Cabins made of the entwined branches of trees were his first dwellings: Of stone he then formed himself more lasting ones; he set himself to ornament their outward parts, and ARCHITECTURE was placed among the fine arts.

Men, in devoting themselves to Agriculture, failed not to assign to themselves, individually, such shares of the earth as they cultivated, and to partition it into property. From that moment the right of possession and the transmission of property called for Civil Jurisprudence, at the same time that the preservation of life, and the safety of their persons required a Criminal Code.

It was not enough to have a few fundamental laws: new circumſtances, during a considerable time, daily required new ones, or a reform in the former. It became neceſſary to determine by whom those laws should be made or reformed, to whom should be assigned the task of attending to their execution. The wants of the society called for contributions from each of its members; it became neceſſary to decide by whom those supplies should be granted and levied: hence the Constitutions of Goverments and Political Œconomy.

The laws are watchful that one citizen ſhall not hurt another, and punish all attempts upon persons or property; but there are certain duties which they cannot prescribe, and the transgression of which escapes their sword, such as those of Father, of Husband, of Friend, of Superior and Inferior; they therefore become the subject of MORALITY.

It is difficult to persuade men how much it is their intereſt to be constantly virtuous, and almost all are by nature disposed to depart from the principles of morality, when they believe they may do it with impunity: it belongs to RELIGION to teach them that if they flatter themselves to escape from punishment, and from the disgrace which attaches to those who break the agreements of Society, yet they cannot in the same manner avoid the eye of the ALMIGHTY, whose existence all Nature has demonstrated to them: and the terror of what is reserved for them in that future state of which they are inwardly persuaded, puts a salutary curb upon that evil disposition which Morality alone would find it difficult to repress.

Obedience to the Laws, observance of the precepts of Morality, and strictness in performing the duties of Religion, would not however be altogether sufficient to ensure happiness. The moſt valuable enjoyments indeed are those of the heart; but then, its sorrows are also the most severe: it is therefore important to know how to insure friends, and avoid making enemies: from thence comes the art of behaving with propriety in the World, or POLITENESS, which, although it has never been regarded as a science, may however, as well as Morality, be founded upon determined principles.

We have now considered Man placed as an individual amongst his fellow-creatures; it remains for us only to seek the relations which exiſt between Men, when considered as national bodies. Of these it is the same as of individuals; their particular intereſts are almoſt always found to be in opposition; whence results the necessity of establishing between them general laws, and of providing the means of maintaining them: this is the end of POLICY.

The study of those rules which are to direct the conduct of political societies belongs to the LAW OF NATIONS. The art of making them, and exacting an obedience to them, requires that the situation of the different people who divide the globe should be well known; that the strength, the resources which that situation gives them; their origin, the foundation of their governments, the revolutions which have overthrown ſome of them, the causes which have brought on those revolutions, should all likewise be perfectly ascertained: these are what GEOGRAPHY, HISTORY and TRAVELS particularly teach.

The knowledge of the intereſts of different nations, and of their productions, serves to establish alliances or treaties; whence arises COMMERCE, which is chiefly carried on by means of NAVIGATION.

The infraction of treaties is revenged by *War*, which requires that we possess an acquaintance with every branch of Military science, TACTICS, ARTILLERY, FORTIFICATION.

PART THE THIRD.

Such is the analytical order of all human knowledge. To apply it to the education of Youth, its chain should not only be followed with care, but the strength and the progress of the understanding should be strictly conformed to.

Before seven years old, the organs are too feeble, the faculties are too little unfolded, for a child to be capable of persevering attention. The body, still delicate, for the ſake of its attaining its due form, has need of a great deal of motion, and ought not to be confined to a too sedentary mode of life. It is only after that age, then, that it is proper to begin a regular series of application. By supposing, according to the usual method, that ten years are devoted to study, it will be easy in that interval to go regularly through every branch of Science and Philosophy, in a manner sufficiently profound to prepare the pupil, at the age of seventeen or eighteen years, to take an active part in society, and fulfil his duties with distinction.

There are duties which ought to be practised, even before the necessity of doing it, or the principles upon which they are founded can be understood. Such are the duties to which we are enjoined by Morality and the Religion in which we are born. In a society of so small an extent, of so simple a nature as a school, the scholars are however necessitated to observe the same respect for property, and the same deference to persons, as they will one day be obliged to do upon the great theatre of the world; and I must here remark, that this is one of the chief advantages of public over private education. Young people brought up under the eye of an indulgent parent and surrounded by domestics devoted to their service, can never learn how they ought to conduct themselves amongst their equals: on the contrary, when they are brought up with many other young people of the same age and rank, from whom they have neither services nor attention to expect, but in proportion to their deserts, the desire of participating in their amusements, the necessity which they feel so strongly in childhood of having a friend, lead them naturally to put into practice those virtues which will insure esteem and confidence, and those kindnesses which touch the heart: no other task remains for the Master, but that of endeavouring to direct their inexperience to profit by the opportunities which their little quarrels may present; to shew them the need of reforming the faults in their tempers, and to engrave upon their youthful minds the fundamental truths of morality; being thus accustomed to put them into practice, they will afterwards contemplate with infinitely more success, their causes, their consequences, and their connexion with other social conventions, when they arrive at them in the course of the progressive order of their studies.

With regard to Religion, as it is to its Ministers that belongs the care of explaining its precepts and inculcating its duties, this part of education ought to be consigned to a Clergyman of the established Church, who may be directed at the same time to give to his pupils the necessary instructions relative to their own language, and afterwards to the Latin tongue, which they should be taught to pronounce conformably to their national idiom.

Their other studies ought to be distinguished into the principal ones, of which I have pointed out the necessity, and given the developement; and the accessory studies which comprise the accomplishments that have for their end the agreeable, as well as the useful, they may be distributed according to the following method.

FIRST YEAR.

From Seven to Eight Years of age.

The study of the French Language, so generally spread abroad, and consequently so necessary, is that by which they ought to begin. That study should consist in the acquirement of a great number of words, of their orthography and pronunciation, without overloading the childrens minds with a quantity of rules and exceptions of which they can neither comprehend the utility, nor perceive the connexion. The moment of developing to them the principles of the language should be defered till that period, when their minds habituated to proceed from individual to more extended ideas of gender and species, become capable of abstractions.

They should, at the same time, be taught the elements of CALCULATION, by conducting them from the idea of unity to that of numbers. The unities will first be made intelligible to them by objects that strike their senses; they will be taught to count and calculate by memory, every thing that presents itself to their sight. They will be instructed next how to know the figure and the value of the signs, which are used to express different numbers: they will learn thus to write down the operations which they have previously been taught to think, and care must always be taken to habituate them not to separate the idea of the sign from its signification.

It is extremely useful thus to accustom children to count and calculate by memory, the objects which immediately affect their senses, before they proceed to the operation of cyphers. By following this method, Mathematics will only offer to their minds ideas that are sensible and palpable, and will require from them merely the use of their eyes and hands, and a slight degree of application. It is by this means alone that they can be made to understand why the Mathematics essentially occupy the first place in the analytical system of the sciences. The authors who have written concerning them, have constantly repeated that they were the key to every other science, that they ought to be our first study; but they have never demonstrated how that priority was established by the connexion of facts and things. Philosophers, in general, have regarded Mathematics as mere rules laid down, in order that we might apply things with more certainty to our own use, and have referred them to the wants of men. To determine their real place, it was necessary to present them (as I have done in beginning the developement of my system,) resting upon the first observations which are offered to us by the objects that surround us: but these observations can be made only upon Nature herself, and can never be taken in by those to whom no other ideas have been given than those of cyphers and figures traced upon paper, as is done in common education.

To the occupations I have been mentioning, should be added, during a time, some lessons of Writing, and afterwards the elements of Drawing. It is also from this moment that the principles of instrumental *Music* should be begun, whilst the hand is supple and easily answers to all that is required of it. This study ought to continue during several years, and in proportion as the body strengthens, should be succeeded, in course, by *Dancing*, *Fencing*, and *Riding*, all of which give us grace and firmness, augment our vigour and adress, and are almost as useful to a man of the world as science and philosophy.

The FIRST YEAR will then comprise

Principal Study.

FRENCH LANGUAGE.
ARITHMETIC.

Accessary Studies.

WRITING. DRAWING. MUSIC.

SECOND YEAR.

From Eight to Nine Years.

HISTORY, which, in our Analytical Table, is placed in the part where its application becomes useful, demands however a much longer study than it would be possible to give it, were we to defer it so long before we begun it: besides, it requires from children neither profound reasoning, nor fatiguing attention, and consists only of simple facts which are one day to serve for the basis of their judgments and actions; when they know how to compare them with present events, and how to draw consequences from them relative to future ones: it is therefore at that age when the memory receives impressions the most easily, that those facts ought to be deeply engraven, by presenting them with clearness, by giving to the imagination a facility in representing to itself the events and the places where they happened by means of Geographical maps, and by assisting the memory, which might be confused by too great a variety of particulars, with Chronological Tables.

The French language, which must be constantly used in conversation, will not this second year require any particular study: to amend their pronunciation, the best French Historians should be put into the hands of the pupils to read aloud.

The same motives which call for the study of CALCULATION to be begun by an application of it to real objects, demand the same with regard to GEOMETRY. The practice must be united as much as possible to the theory: the children should be taught, then, to work upon ground as well as upon paper: by these means they will perceive the utility of their lessons, and the hours of study will often prove hours of pleasure and amusement.

This year then will be taught,

Principal Study.

ELEMENTARY GEOMETRY.

Acceſſary Studies.

DRAWING. MUSIC. DANCING.

ANCIENT HISTORY.

THIRD YEAR,

From Nine to Ten.

We passed on laſt year immediately from *Arithmetic* to *Elementary Geometry*, and this year we mean to employ in ALGEBRA, because the figures and demonſtrations which we make uſe of in the ſtudy of Geometry are more likely to excite the attention of children than the too indeterminate algebraical operations, which would not be very intereſting to them, till by Geometry they diſcover their end and application: moreover, by the preliminary ſtudy of Geometry, young people are familiarized to ſee real objects, ſuch as lines and angles, repreſented by the letters that mark their terminations, and thus it becomes eaſy to make them comprehend how the Quantity of theſe lines may be equally as well repreſented by theſe ſame letters as by expreſſing them by numbers; and the facility which reſults from the uſe of theſe letters instead of numbers, in finding the solution of the complicated questions which will be proposed to them this year, will reconcile them to this new form of calculation.

Principal Studies.

Algebra.

Application of Algebra to Geometry.

Accessary Studies.

Drawing. Music. Dancing.

Ancient History.

FOURTH YEAR.

From Ten to Eleven.

After having explained to the Pupils the principles of Mechanics, and shewn them how to apply them to the simple machines made purposely for those demonstrations, they must be taken to see all the great machines that deserve their attention; they will be taught to examine them in every part, and to explain their action; for they should be habituated to exercise upon every occasion that analyzing spirit which alone can form them to see clearly, and to judge rightly.

From the notion of terrestrial, they will next proceed to that of celestial bodies, which will be rendered equally sensible by means of the machines invented to that purpose,

Principal Study.

MECHANICS.
ASTRONOMY. DIALING,

Accessary Studies,

DRAWING. MUSIC. DANCING. &c.
ANCIENT HISTORY.

FIFTH YEAR.

From Eleven to Twelve,

The first lessons of natural Philosophy and Chymistry necessary to the due understanding the principles of Gas and Water, will be accompanied by all the latter experiments, and every advantage that the best furnished laboratories can afford, *Principal Study.*

PHYSICS.

ELEMENTS OF CHYMISTRY.

Accessary Studies.

DRAWING. MUSIC. BODILY EXERCISES.

READING OF ANCIENT HISTORY.

SIXTH YEAR.

From Twelve to Thirteen.

It is almost impossible that a private man should possess a complete cabinet of natural history, and those even that are public are imperfect. It is by looking into nature herself that we must learn to study her history. Taking for their guides the many excellent authors who have written upon this subject, the pupils will delight to seek in the mines for those fossils of which they have learnt the regular classification; they will with pleasure range the fields for plants whose gender and properties they can distinguish, and will compare every insect they catch with the prints given of them in their books.

All nature will acquire for them new charms, and will present to them continually fresh objects of admiration and instruction.

The practical study of Italian will be begun this year. Drawing, Music, and the bodily exercises to which several years have already been given, will now be no other than objects of recreation; and during this year and the next, sufficient time may be dedicated to the learning Italian, to acquire great proficiency in it, especially having, during the last five years, made such constant use of French, which tongue, in many respects, bears so near a resemblance to the other.

Those parents who think Italian of little service to their children, and would prefer their knowing Latin thoroughly, may have them begin it this very year.

Principal Study.

NATURAL HISTORY.

Accessary Studies.

ITALIAN OR LATIN.

MODERN HISTORY.

SEVENTH YEAR.

From Thirteen to Fourteen.

The relations of Man with himself, which should now occupy the pupils, being less varied and less exensive than his relations with other beings and other men, may with great care be attained in the course of this single year, as they will already have acquired a habit of application and facility of learning. To a course of Anatomy, gone through with a professional man, will succeed the study of man's intellectual faculties, and their combination with his animal organization.

Principal Study.

ANATOMY.
THEORY OF SURGERY, OF MEDICINE AND PHARMACY.
PNEUMATOLOGY.
PHYSIOGNOMY.

Accessary Studies.

ITALIAN.
MODERN HISTORY.

EIGHTH YEAR.

From Fourteen to Fifteen.

This year may be applied to general Grammar, which is common to every language, and from thence the pupils proceed to the particular grammar of the English, French and Italian tongues, which will have already been learned by habits. It is also necessary this year to begin the study of Latin, which can be learned only by the rules and principles; being no longer spoken in ordinary, this year and the two next will be sufficient for its study, since, as we neither know its pronunciation nor its accent, it will be enough for us to understand its authors.

Principal Study.

General and Particular Grammar.
Logic.
Eloquence.
Poetry.

Accessary Studies.

Latin.
Reading of Modern History.

NINTH YEAR.

From Fifteen to Sixteen.

Man should this year be considered in his state of civilization: instructions should be given upon Agriculture and the mechanic and liberal Arts, and to them should be applied the lessons of Mathematics, Mechanics and Chemistry, which had been given in the preceeding years.

In that part of man's social duties which relates to the constitutions of Governement, the principal endeavour should be to give a thorough knowledge of that of the Nation to which the pupils belong.

Having finished the course of History which gives an acquaintance with the past, an account of the present state of the nations contemporary with themselves, ſhould be sought for in the relations of travellers; and to these researches should be added the reading of such authors as treat of political Œconomy.

Principal Study.

AGRICULTURE.

MECHANICAL AND LIBERAL ARTS.

DUTIES OF MAN IN SOCIETY.

Accessary Studies.

LATIN.

READING OF TRAVELS AND WORKS UPON POLITICAL ŒCONOMY.

TENTH AND LAST YEAR,

From Sixteen to Seventeen.

This last year should be devoted to the study of Politics, which takes in the Rights of Nations, and the application of History and Geography to Trade, and to the Treaties and interests of different Nations. Here likewise some general instructions should be given concerning the military sciences.

Principal Study.

POLITICS.

MILITARY SCIENCES.

Acceſſary Studies.

LATIN.

READING POLITICAL ŒCONOMY AND MEMOIRS OF GENERALS AND STATESMEN.

I HAVE supposed that children begin this analytical course of studies at seven years old, and that, at that time, they are able to read, and have begun to learn writing. Those of a more advanced age who may already have some knowledge of French and the Mathematics, may begin immediately by the studies mentioned for the following years, according to their degrees of instruction.

The Plan which I here propose affords another great advantage, which is, that at whatever period it may suit the parents to take away their children, whether after the study of the Mathematics, of Physics, of natural History, &c. all that they have learned will be complete, and will be of use to them at all times, not only as branches of knowledge already acquired, but also as the groundwork of every other branch which they may seek in future to obtain. The order in which I have placed the different sciences and Philosophy is such, that the *last* are not at all necessary in order to understand the *first*; but on the contrary, they depend upon and are the natural result of those former ones, and could not at all be acquired but by proceeding in due order through them as preliminary studies.

Let it not be here fancied that this Plan is calculated only to render the understanding superficial, confused, and presuming: we are not superficial when we know the great and true principles of things; we are not confused when we have studied with method; we are not presumptuous when we know so much, and no more than is requisite to make us see how much we have ſtill to learn. The Youth who has been taught to study and to observe with his own eyes, to cast away prejudices, and not to yield but to demonstration and evidence; who possesses entirely every fundamental truth, and who holds, if I may use the expression, between his hands, the two extremities of the great chain of nature, will be qualified to add every day new stores to the knowledge he already possesses, and whether he passes his time in the sweet enjoyment of retired life, or is called upon to fill an important station in society, he will join to the acquirements of a Scholar, the light of a Philosopher, the virtues of a Citizen, and the talents of a Statesman.

FINIS.

POSTSCRIPT.

THE Author of this Plan purpoſes to carry it into execution in the Academy which he is going to open at Bath. Every branch of theſe instructions ſhall there be faithfully gone through, and the choice of friends who are to assist him in the developement of his ſystem, will assure precision, and announce ſucceſs: for it is not their first attempt at public teaching, and it has been their ſole occupation during a number of years in the principal Universities in France.

Such Parents as wiſh to conſult him further on his Eſtabliſhment will be pleaſed to apply to the Author, at Bath.

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